



# AGRION

NEWSLETTER OF THE WORLDWIDE DRAGONFLY ASSOCIATION

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## NEWSLETTER OF THE WORLDWIDE DRAGONFLY ASSOCIATION

AGRION is the Worldwide Dragonfly Association's (WDA's) newsletter, published twice a year, in January and July. The WDA aims to advance public education and awareness by the promotion of the study and conservation of dragonflies (Odonata) and their natural habitats in all parts of the world. AGRION covers all aspects of WDA's activities; it communicates facts and knowledge related to the study and conservation of dragonflies and is a forum for news and information exchange for members. AGRION is freely available for downloading from the WDA website at [[http://worlddragonfly.org/?page\\_id=125](http://worlddragonfly.org/?page_id=125)]. WDA is a Registered Charity (Not-for-Profit Organization), Charity No. 1066039/0.

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### Editor's notes

Keith Wilson [[kdpwilson@gmail.com](mailto:kdpwilson@gmail.com)]

### WDA Membership

There are several kinds of WDA membership available (single, student, family, affiliated society or sustaining), either with or without the WDA's journal (*The International Journal of Odonatology*). You can sign up for a membership on the WDA's website [[http://worlddragonfly.org/?page\\_id=141](http://worlddragonfly.org/?page_id=141)] or by contacting the WDA secretary directly [[wda.secretary@gmail.com](mailto:wda.secretary@gmail.com)]. Sponsored memberships are also available for those who cannot afford the cost due to currency restrictions or other reasons.

### Conference News

**5th European Congress on Odonatology (ECOO) 2018** is scheduled to be held in Brno, Czech Republic 9-12 July 2018. For more info please contact Otakar Holuša, Mendel University in Brno, Faculty of Forestry and Wood Technology, Dept. of Forest Protection and Wildlife Management, Zemědělská 3, CZ-613 00 Brno, Czech Republic, mob: +420 606 960 769, e-mail: [[holusao@email.cz](mailto:holusao@email.cz)].

### The International Congress of Odonatology 2017 (ICO2017)

The International Congress of Odonatology 2017 (ICO2017), originally scheduled to be held in Algeria, was very successfully held in the Gillespie Centre at Clare College, Cambridge from 15-20 July 2017. Almost 100 participants from 27 countries, including 30 students, many of whom were supported with funding covering registration and the Congress dinner attended. For Congress report see article by Richard Rowe on page 10. ICO2019 will be held in Austin, Texas, USA.



ICO 2017  
Clare College  
Cambridge

**The 4th DragonflyIndia Meeting and the 9th Indian Symposium of Odonatology 2017** was held 15-19 September 2017 in South Goa (see meeting report on page 22). K.A. Subramanian, one of the meeting's report authors, has just co-authored, with R. Babu (September, 2017), an updated (version 3) Indian Odonata checklist titled: *A Checklist of Odonata (Insecta) of India*, which includes 488 species [[Link](#)].

### Student Research News & WDA Conservation and Research Report

A report on an *Odonata* survey at Juru Seberang, Belitung Island, Indonesia by Akbar Alfariysi (WDA student member), that was partly sponsored by a WDA research grant, is provided on page 42.

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**Cover:** *Risiophlebia guentheri* Kosterin, 2015 (*Zootaxa* 3964: 138-145). Male and female photos taken at type-locality by Oleg Kosterin, 16 Jun 2014 in tall grass, forest swamp, Central Plateau of the Annamense Mountains, Dak Dam village environs, Mondulkiri Province, Cambodia (12°25' N 107°19' E, 780 m a.s.l.). This recently described species has now been recorded from Thailand (see "New national records of Odonata from Thailand" on page 30).



## Too pervert: an attempt at an interfamilial homosexual copulation wheel in damselflies

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Aberrations of sexual behaviour resulting in mechanical contacts of improper mates are frequent in Odonata. Aberrational tandems between representatives of different species/genera/families, of the same sex or of more than two individuals are most frequent and recorded in many publications especially in local odonatological journals (see, for instance, the most recent report by Eda 2017). Some quarter of a thousand cases registered to the border of the last millennium were reviewed and discussed by Corbet (1999). Incorrect copulation wheels (copulae) (see for example my old report of a copula between a *Cordulia aenea* (Linnaeus, 1758) male and an *Epitheca bimaculata* (Charpentier, 1825) female; Kosterin 2000) are less frequent (Corbet 1999). This is not surprising as forming a tandem is just an act of male grasping a misidentified odonate individual's head rear (in dragonflies) or prothorax (in damselflies) with its anal appendages, whereas formation of a copulation wheel involves actions of both partners towards each other, in our case towards improper mates. However, curving the female's abdomen towards the male's secondary genitalia may be a reflex induced by being grasped by a male. At the same time mismatch copulae attract special attention as a prerequisite for the possibility of interspecies crosses and introgression to happen (still difficult after a heterospecific wheel formation due to mechanical and genetic barriers). There were also many reports of double male tandems, although less frequent than heterospecific male-female tandems; their formation is thought to result from attempts of two males to mate with the same female implying a triple connection as a transitory state (Eda 1970; Corbet 1999).

On March 3, 2017 while examining a stream near the border of Ream National Park in southern Cambodia (10°33'26-30" N 103°39'26-33" E) flowing through remnants of evergreen tropical forest (a plantation on one side, a cutting at the other side, some trees and bushes left at the river), I noticed in dry forked fern and photographed an incompletely formed copula (Fig. 1) of modestly coloured damselflies and then captured it by hand for identification. It turned out that the 'active' male was *Copera vittata* (Selys, 1863) while the female position was served by an immature (with still pinkish-brown ground colour) male of *Mortonagrion falcatum* Lieftinck, 1934. These were damselflies of different size (*M. falcatum* being considerably smaller, especially shorter) and coloration (male of *M. falcatum* with blue markings, absent in both sexes of *C. vittata*; but the ground colour is similar) belonging to different families (Platynemididae and Coenagrionidae, respectively) but to the same sex.

In the latter aspect, the behaviour of the 'passive' male was most interesting. No complete copulation wheel was formed. The 'active' male kept its abdomen curved inwards in an attempt to initiate copulation. The 'passive' male regularly, each 30 seconds or so, bent its abdomen towards the base of the 'active' male's abdomen but then relaxed it again (I observed several such movements). It looked like an incomplete version of the feminine



**Figure 1.** A tandem of males of *Copera vittata* and *Mortonagrion falcatum*, Ream Peninsula, Cambodia, 3 March 2017.

copulatory movements. Unfortunately, all four shots I made for two seconds (e.g. that of Fig. 1) show the passive male with a relaxed, straight abdomen only, for at that time I did not realise what an unusual situation I faced and did not bother to make a multi-shot including images with the supposed female with its abdomen curved. So the most interesting feature of this pair remained undocumented.

Hence, a male of *M. falcatum* retains, although in an abortive version, a feminine copulatory reflex of bending its abdomen in response to its prothorax being grasped by another male. This may be evidence that at least this aspect of the feminine copulatory reflexes is not 'switched off' in males. There can be not much surprise in it if one thinks about the selective cost of sexual dimorphism. No doubt the observed bending of the abdomen is an unconditioned, inherited reflex which makes sense in females. To switch it off in males, a special regulatory link would be necessary in the genetic network governing the developmental programme, which would transmit a suppressive signal from a genetic trigger of development of an organism towards the male sex to a genetic trigger of development of the copulatory reflexes. Establishment of such a link would have been paid for with selective deaths, and its maintenance in 'working condition' would be supported by purifying natural selection. All this would imply some importance of blocking the female reflexes in males. Naturally a much simpler and 'cheaper' solution would be just to drop this genetic 'switching off' of the discussed feminine copulatory reflex in males and retain it, especially as they normally do not experience its behavioral trigger (being grasped by the prothorax) and hence normally do not exhibit (and spend extra energy for) it. However, the seeming absence of reports of observations similar to that reported here, when the 'passive' male in a double male tandem attempts to form a copulative 'wheel', seems to be evidence that this feminine reflex is at least not widespread in males.

It remains unclear if the blunder of the 'active' *C. vittata* male was somehow conditioned or it was purely a rare random event. *C. vittata* is widespread and common in Cambodia while *M. falcatum* is very local and until now was known from only two locations in Koh Kong Province (Kosterin 2011; Kosterin & Chartier 2017) but hitherto not in Preah Sihanouk Province, where the observation reported here was made. This contradicts the most frequently observed situation when the 'passive' partners in aberrant tandems belong to species abundant in respective localities, hence being most frequent targets for not so selective sexual activity (Corbet 1999). One could alternatively speculate that a damselfly male has some 'notion', either inherited or learnt, or both, of the locally common damselfly images as either proper or improper mates, but fails to make a proper 'decision' upon encountering an unusual image.

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